ECM-959A

SERVICE MANUAL

US Model
Canadian Model
AEP Model

SPECIFICATIONS

General

Type	One-point stereo (employing the Mid-side system), electret condenser microphone (with back-electret condenser capsules)
Output plug	L-shaped stereo miniplug
Microphone cord	3.8 mm dia. Two core-shielded, OFC (Oxygen-free copper) Length : Approx. 2 m (6 feet 7 inches)
Battery	R6 (size AA) battery
Dimensions	30 x 175 mm (Outside diameter x length) (1 3/16 x 7 inches)
Mass	Approx. 206 g (7.3 oz) including battery
Supplied accessories	Wind screen (1) Microphone holder (1) (PF1/2 screw) Microphone stand (1) Microphone stand screw adapter SAD-35 (1), SAD-34 (1) Carrying case (1) Operating Instructions (1)

Performance

Frequency response	50 – 18,000 Hz
Directivity	Directive angle : 90° or 120° (switchable)
Output impedance	550 ohms ±20 %, unbalanced
Sensitivity (directive angle 120°)	Open circuit voltage*1 : –48 ±3 dB Effective output level*2 : –51.4 ±3 dBm Difference between L and R channel sensitivity : Less than 3dB Recommended load impedance : More than 3 kilohms
Power requirements	Normal operating voltage : 1.5 V, R6 (size AA) battery Minimum operating voltage : Approx. 1.1 V Battery life : Approx. 2,500 hours with a Sony R6P (size AA) battery
Noise	Signal-to-noise ratio : More than 69dB (1,000 Hz, 1Pa) Inherent noise(converted to the equivalent input sound level)*3 : Less than 25 dBSPL Wind noise (when using the wind screen)*4 : Less than 45 dBSPL Induction noise from external magnetic field*5 : Less than 10 dBSPL
Maximum sound pressure level*6	More than 117 dBSPL
Dynamic range	More than 92 dB
Operating temperature	0 °C to 40 °C (32 °F to 104 °F)
Storage temperature	–20 °C to +60 °C (–4 °F to 140 °F)

*1 0 dB =1 V/Pa, 1,000Hz (1Pa = 10 µbar = 94dBSPL)
*2 0 dBm =1 mW/Pa, 1,000Hz
*3 0 dBSPL = 2 x 10^{-5} Pa
*4 Wind noise is the value measured by applying a wind velocity of 2 m/s (6.6 ft./s) from all directions to the microphone.
The mean value is taken and converted to the equivalent input sound level
*5 The external magnetic field induction noise is measured with the microphone placed in an alternating magnetic field of 50 Hz, 1 x 10^{-7} T. The maximum noise value is taken and converted to the equivalent input sound level.
*6 1 % wave distortion is present at 1,000Hz.

Design and specifications are subject to change without notice.

Features

This microphone is suitable for use in a variety of situations such as at a concert or a conference with the portable stereo recorder such as DAT, Sony WALKMAN Professional.

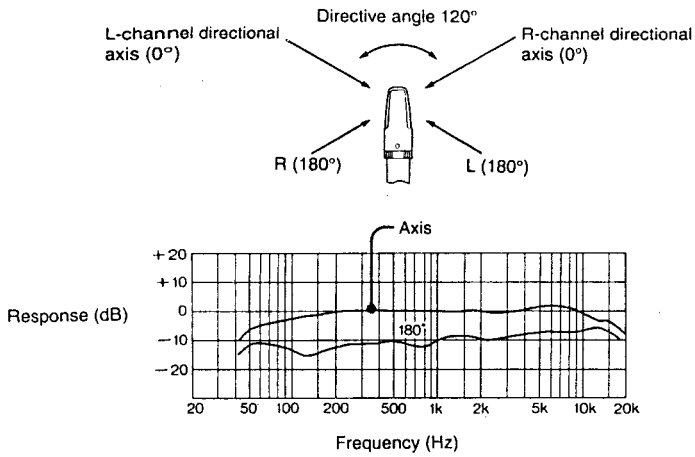
- The directive angle (between left and right channels) can be set to 90° or 120° according to the sound source.
- The microphone gives excellent sound image and faithful stereo sound reproduction with less "hole in the middle".

MICROFILM

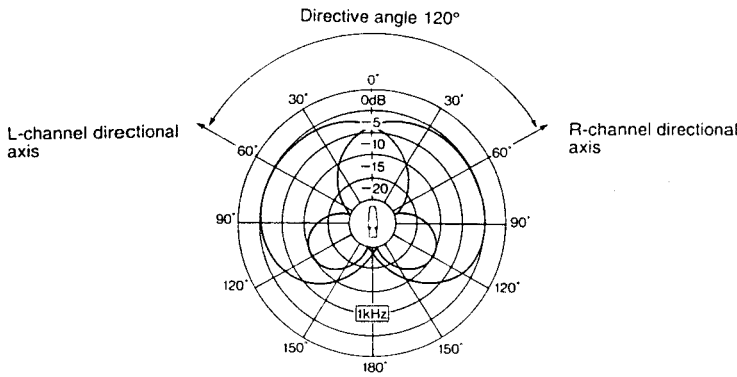
ELECTRET CONDENSER STEREO MICROPHONE

SONY®

Frequency Response



Directivity Characteristics



Battery Installation

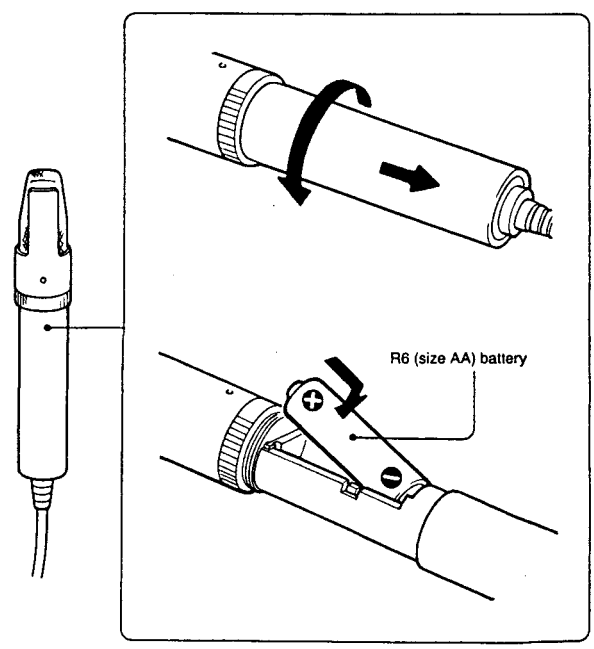
When to replace the battery

When the power is turned on, the battery check indicator lights momentarily. When the battery becomes weak, the indicator remains dimly lit or does not light at all. In this case, replace the battery with a new one.
Sony R6P (size AA) battery gives continuous operation of the microphone for about 2,500 hours.

Notes on battery

To avoid damage to the unit caused by battery leakage and corrosion;

- Install the battery with correct polarity.
- Do not try to recharge batteries.
- Remove the battery if the microphone is not to be used for a long period of time.
  In case of battery leakage, wipe off any deposit in the battery compartment before installing a new battery.

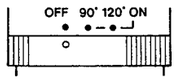


Parts Identification and Uses

[1] Wind screen
Attach to reduce wind or breathing noise.

[2] Battery check indicator
When the power/directive angle select switch is switched to 90° from OFF, this indicator lights momentarily, if the battery is in the good condition.

[3] Power/directive angle select switch
Set the switch in accordance with the sound source.

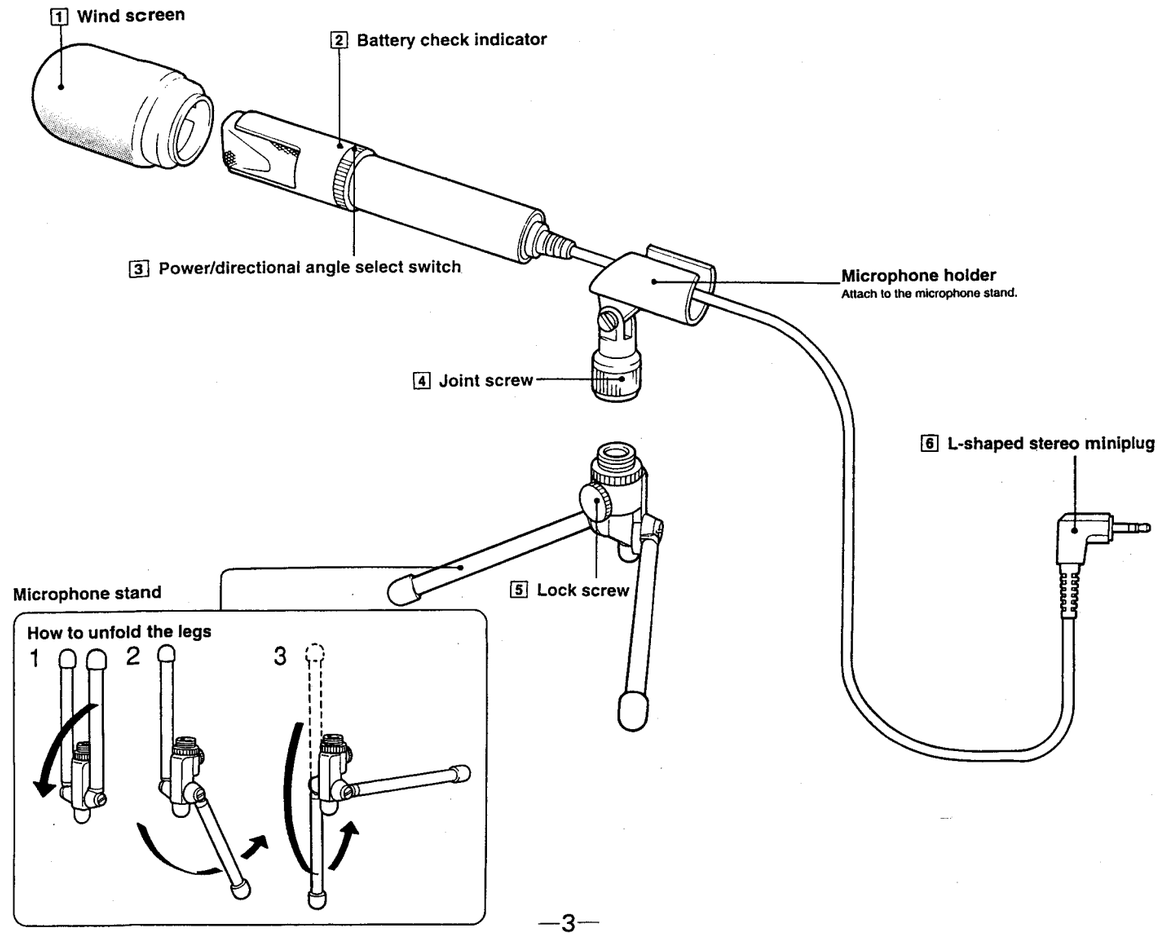


OFF	The power is turned off.
90°	To pick up narrower sound source e.g. Instrumental solo, bird and insect song
120°	To pick up a wider sound source e.g. An orchestra, chorus, moving train, motor car race

[4] Joint screw
This screw can be also attached to the tripod for a still camera. To attach the tripod, loosen the lock screw to detach the microphone stand.

[5] Lock screw
Adjust the direction of the microphone and tighten the screw.

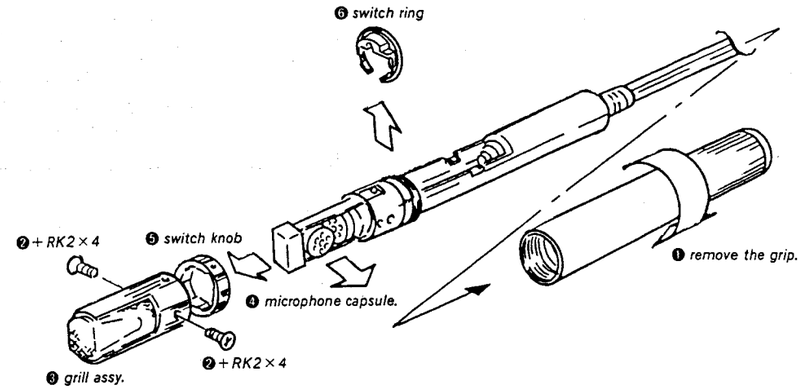
[6] L-shaped stereo miniplug
Connect to the MIC jack of a stereo recorder,etc.

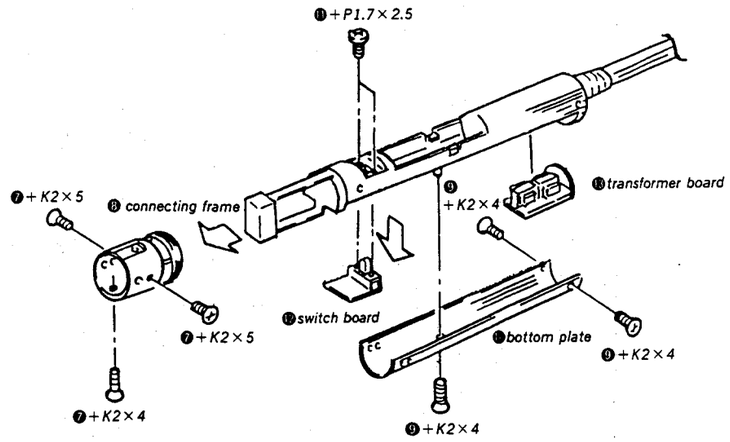


DISASSEMBLY

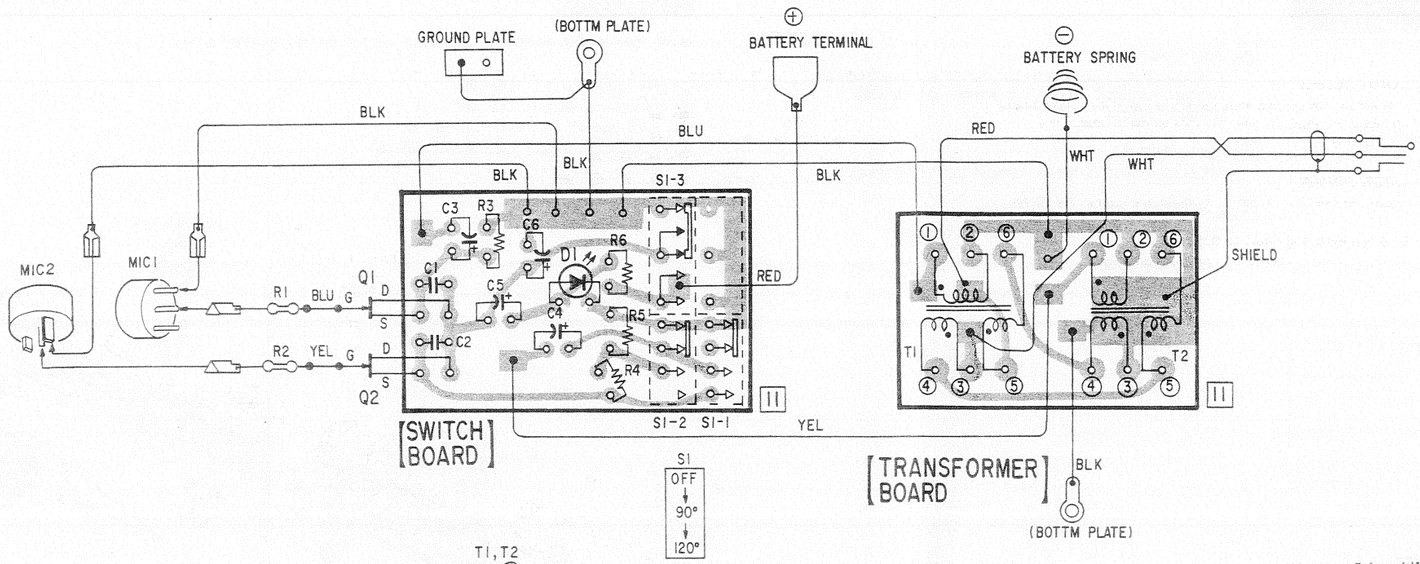
Note: Follow the disassembly procedure in the numerical order given.

(1) grill assy : ❶–❸
(2) microphone capsule : ❶–❹
(3) swith board : ❶–❸, ❺–⓬
(4) transformer board : ❶–❸, ❺–⓫, ⓭



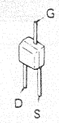


PRINTED WIRING BOARD

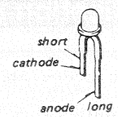


● Semiconductor Lead Layout

2SK377-J



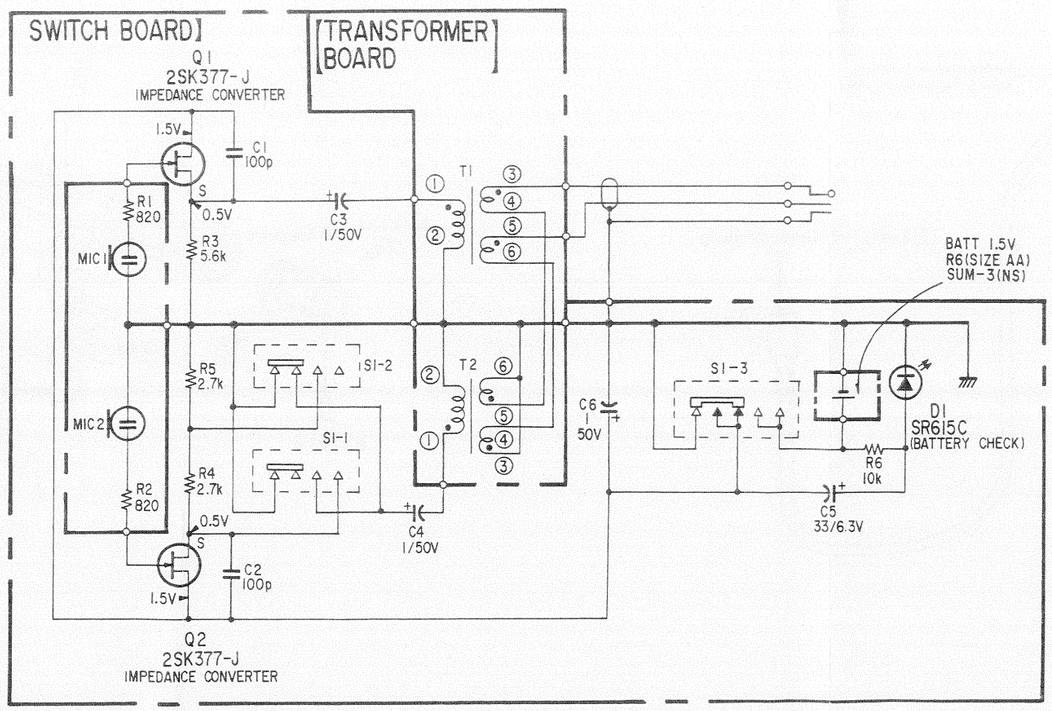
SR615C



Note on Printed Wiring Board:

- ○— : parts extracted from the component side.
- ●— : parts extracted from the conductor side.
- ▨ : Pattern on the side which is seen.

SCHEMATIC DIAGRAM



SI
OFF → 90° → 120°

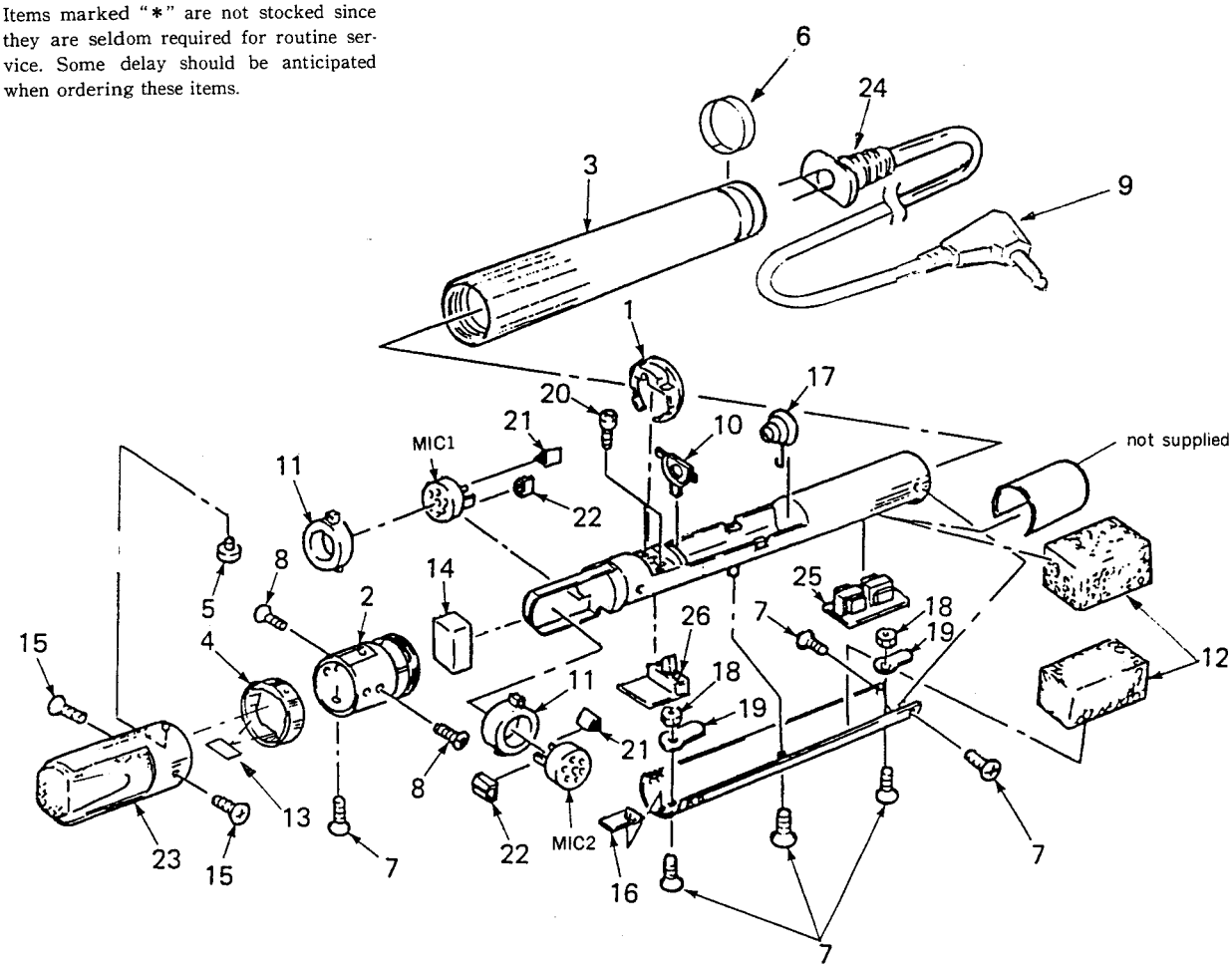
Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

EXPLODED VIEW AND PARTS LIST

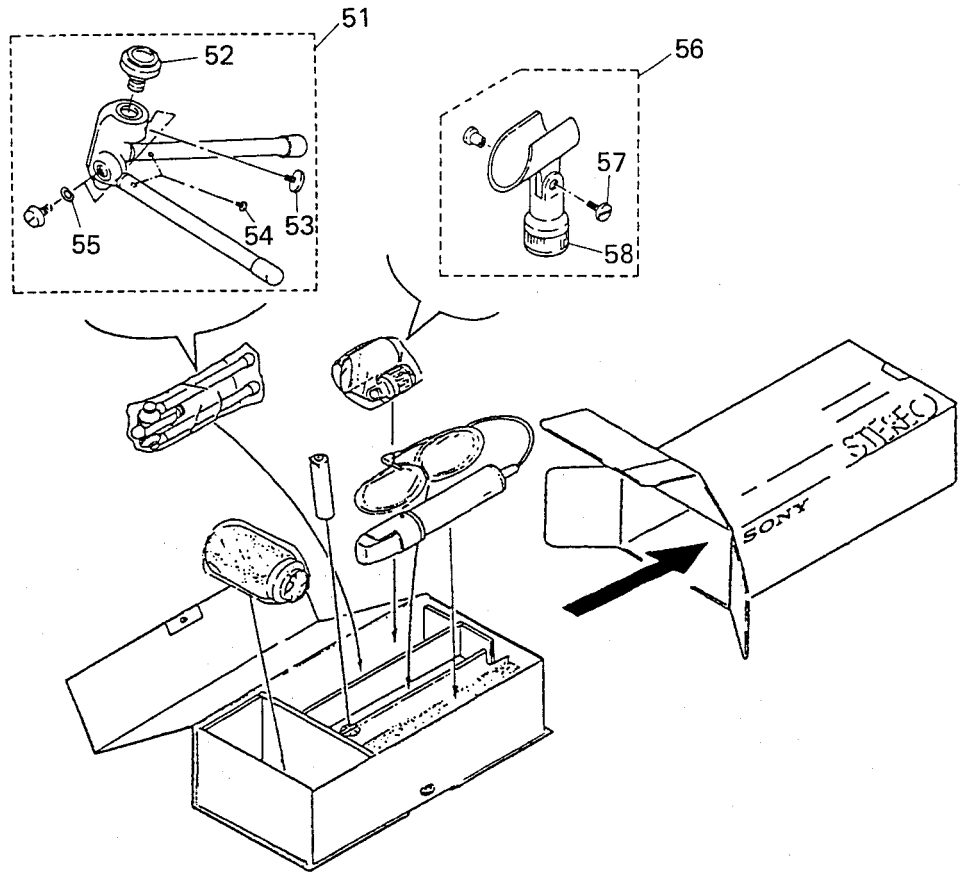
NOTE :

- The mechanical parts with no reference number in the exploded views are not supplied.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.



Ref. No.	Part No.	Description	Remark
1	2-513-914-00	RING, SWITCH	
* 2	2-529-951-02	FRAME (RELAY)	
3	2-543-107-01	GRIP	
4	2-529-954-11	KNOB (SWITCH)	
5	2-529-958-01	COVER, LED	
6	2-543-108-01	LABEL, MODEL NUMBER	
7	7-627-452-28	SCREW, PRECISION +K 2X4	
8	7-627-452-38	SCREW, PRECISION +K 2X5	
9	1-696-447-11	CORD, MICROPHONE (2 CORE)	
10	2-520-113-00	BOARD, TERMINAL, POSITIVE	
11	2-529-957-01	HOLDER, CAPSULE	
12	9-911-815-03	CUSHION	
13	3-831-441-XX	CUSHION	
14	9-911-846-XX	CUSHION	
15	7-627-651-08	SCREW, PRECISION +RK 2X4	

Ref. No.	Part No.	Description	Remark
* 16	2-539-605-01	PLATE, GROUND	
17	3-325-414-01	SPRING	
18	7-622-205-05	NUT M2 TYPE2	
19	7-623-505-01	LUG, 2	
20	7-627-552-08	SCREW, PRECISION +P 1.7X2.5	
21	2-523-713-00	TERMINAL	
* 22	2-532-219-00	TERMINAL, GROUND	
23	X-2542-067-1	GRILLE ASSY	
24	2-529-980-01	BUSHING	
* 25	1-623-794-11	TRANSFORMER BOARD	
* 26	1-623-793-11	SWITCH BOARD	
MIC1	8-814-177-01	MICROPHONE CU17-02-A	
MIC2	8-814-178-01	MICROPHONE CU17-03-A	



Ref. No.	Part No.	Description	Remark
51	X-2542-009-1	STAND ASSY, MICROPHONE	
52	2-542-103-01	SCREW, STAND	
53	2-542-105-01	SCREW (B), SET	
54	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
55	7-623-710-37	WASHER 6, WAVE	
56	X-2542-070-1	HOLDER ASSY, MICROPHONE	
57	2-509-712-21	SCREW	
58	9-910-999-36	POLE, PF 1/2 ARM	

ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL:Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F:nonflammable
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u:μ, for example:
  uA ..: μA.. uPA..: μPA..
  uPB..: μPB.. uPC..: μPC.. uPD..: μPD..
- CAPACITORS
  uF: μF
- COILS
  uH: μH

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
*	1-623-793-11	SWITCH BOARD			
		**********			
	2-523-713-00	TERMINAL			
*	2-532-219-00	TERMINAL, GROUND			
		< CAPACITOR >			
C1	1-102-106-00	CERAMIC	100PF	10% 50V	
C2	1-102-106-00	CERAMIC	100PF	10% 50V	
C3	1-126-160-11	ELECT	1uF	20% 50V	
C4	1-126-160-11	ELECT	1uF	20% 50V	
C5	1-124-229-00	ELECT	33uF	20% 10V	
C6	1-126-160-11	ELECT	1uF	20% 50V	
		< DIODE >			
D1	8-719-123-70	LED	SR615C		
		< TRANSISTOR >			
Q1	8-729-824-18	TRANSISTOR	2SK377-J3		
Q2	8-729-824-18	TRANSISTOR	2SK377-J3		
		< RESISTOR >			
R1	1-249-416-11	CARBON	820	5% 1/4W	
R2	1-249-416-11	CARBON	820	5% 1/4W	
R3	1-249-426-11	CARBON	5.6K	5% 1/4W	
R4	1-249-422-11	CARBON	2.7K	5% 1/4W	
R5	1-249-422-11	CARBON	2.7K	5% 1/4W	
R6	1-249-429-11	CARBON	10K	5% 1/4W	
		< SWITCH >			
S1	1-553-414-00	SWITCH, SLIDE			

****

Ref. No.	Part No.	Description	Remark
*	1-623-794-11	TRANSFORMER BOARD	
		**********	
		< TRANSFORMER >	
T1	1-427-508-00	TRANSFORMER, OUTPUT (MIC)	
T2	1-427-508-00	TRANSFORMER, OUTPUT (MIC)	

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MISCELLANEOUS
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9	1-696-447-11	CORD, MICROPHONE (2 CORE)	
MIC1	8-814-177-01	MICROPHONE CU17-02-A	
MIC2	8-814-178-01	MICROPHONE CU17-03-A	

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ACCESSORIES & PACKING MATERIALS
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	3-755-503-11	MANUAL, INSTRUCTION (ENGLISH/FRENCH/SPANISH/GERMAN/DUTCH/SWEDISH/ITALIAN/PORTUGUES)	
	X-2529-903-1	SCREEN ASSY, WINDOW	
	X-2542-009-1	STAND ASSY, MICROPHONE	
	X-2542-070-1	HOLDER ASSY, MICROPHONE	
	2-100-951-04	ADAPTER, SCREW (SAD-34)	
	2-100-952-02	ADAPTER, SCREW (SAD-35)	
*	2-543-214-01	INDIVIDUAL CARTON	
*	2-543-215-01	CASE, ORNAMENTAL	

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